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ABSTRACT

A pressure transducer and method for measuring pressure of a fluid flow in a tube include use of a sensing tube through which the pressurized flow passes. The sensing tube deforms outward in response to the pressurized flow within. Deformation measuring devices, such as strain gages, measure the outward deformation and allow computation of the pressure of the flowing fluid. A housing surrounds the sensing tube to relieve stresses on the sensing tube, to prevent damage to the sensing tube, and to contain any rupture of the sensing tube. The sensing tube may have a round, rectangular, or other shape cross-section. The pressure transducer allows continuous and non-invasive measurement of pressure inside a tube. In addition, a flow restriction such as an orifice may be provided in the sensing tube to enable a flow rate to be determined from the pressure drop across the flow restriction. Further, measuring device for measuring flow rate may utilize a sensing tube that bent (strained) because of forces causes by a change of momentum of flowing fluid due to a direction change of the fluid.

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